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ICF3D-Hydro: 3D Parallel Unstructured Mesh Hydrodynamics Code[1] DAVID S. KERSHAW, *Morgan Stanley Group Inc.*, JOSE L. MILOVICH, MANOJ K. PRASAD, MIKE J. SHAW, ALEKSEI I. SHESTAKOV, *LLNL* —
ICF3D is a three dimensional unstructured mesh, arbitrary Lagrangian-Eulerian (ALE) code to simulate inertial confinement fusion (ICF) plasmas. We describe its hydrodynamic module which discretizes space using discontinuous finite elements and time using an explicit Runge-Kutta scheme. It uses a second order Godunov scheme with a 3D generalization of Van Leer's slope limiting for shock stabilization. ICF3D is written in the object oriented programming language C++. It runs on a variety of computers: uniprocessors, symmetric multiprocessors (SMP) and massively parallel processors (MPP) architectures. We Parallelize using domain decomposition and message passing. A distributed computing environment controls the calculation on a remote computer from a desktop workstation. We present results on problems relevant to ICF target design: shock propagation, Rayleigh-Taylor instabilities and spherical implosions. We also describe parallel scaling obtained on up to 256 processors.

☐ Prefer Oral Session
☒ Prefer Poster Session

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Special instructions: A/V

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